Grading Feeder Cattle

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One of the most basic ways to establish value for feeder cattle is the USDA grading system for frame and muscle. This is a relatively simple concept that was originally developed to establish a common language between buyers and sellers and establish a uniform reporting system. It is now also used to make contracts on the futures market and facilitate trading feeders without actually seeing the cattle. However, it is often overlooked as a method to advance genetic improvement in commercial cow herds. A basic understanding of how feeder calf grades are applied should enable cattlemen to estimate the relative value of their own calf crop and add another tool to the box to make breeding and culling decisions.

The history of feeder cattle grading dates back to the Agricultural Marketing Act of 1964 that set the original standards and charged the United States Secretary of Agriculture with overseeing the application of them. The system was updated in 1964, 1979 and most recently in 2000. The overall concept is to predict the phenotypic characteristics that each calf will express at maturity (finished to the Choice Quality Grade). Grades are based on three factors: 1) frame size, 2) muscling and 3) thriftiness.

Frame size will impact the calf's growth curve or, in other words, the time it will take that calf to be finished (reach maturity) in a conventional feeding system. A large framed steer will reach maturity later and could weigh 1400 pounds by the time it reaches 0.4 inch back fat. On the other hand, a small framed steer might only weigh 950 pounds when it reaches 0.4 inch back fat. It might seem beneficial to feed a steer that matures early to reduce the total feed cost. But, finished live weight controls carcass weight. So, a lighter steer will yield a less valuable carcass with less lean product. Sex also affects maturity. If frame size is equal, heifers will mature quicker than steers.

There are three frame scores in the USDA system: Large, medium and small. It is determined by evaluating the length and height of the calf (Figure 1). Length is determined by visually estimating the distance from the fore flank to the rear flank. Height is determined by visually estimating the distance from the calf's chest to the ground and from the calf's hip to the ground. "Large" grade is given to steers that will finish over 1250 pounds. "Medium" framed steers will finish between 1100 and 1250 pounds. "Small" framed steers will finish at less than 1100 pounds. Heifers will typically finish 100 pounds lighter than steers and each frame score is adjusted accordingly.

Figure 1: Areas to evaluate frame size

The degree of muscling on a calf (muscle to bone ratio) is used as a rough indicator of Yield Grade at maturity, assuming a given degree of fatness. The most effective way to evaluate muscle mass is by viewing the calf from the rear (Figure 2). Start from the ground and work your way up. A heavily muscled calf will have "base width" (a wide stance between the rear hooves). Next, look at the center portion of the quarter. For heavy muscled calves, the center quarter will be wider than the top of the hip or the base width. As muscle mass decreases, the natural distance between the rear hooves will become narrower (sometimes even touching) and the center of the quarter will become flat and less expressive. In general, when viewed from behind, heavy muscled calves will appear rectangular in shape and light muscled calves will be more triangular.

Figure 2: Areas to evaluate muscling

There are four muscle grades in the USDA system: #1, #2, #3, and #4. A "#1" muscle grade designates at least moderately heavy muscled calves that will be expected to have a more desirable (lower) Yield Grade when finished at a given degree of fatness. A "#2" muscle grade is given to calves that have an average amount of muscle and might show some indication of dairy breeding. A "#3" muscle grade indicates thin, light-muscled calves. Finally, a "#4" muscle grade is given to calves that are extremely light muscled.

For a calf to be given any of the 12 combinations of frame and muscle grades, they must be "thrifty." A thrifty animal, as described by the USDA grading standards, does not exhibit signs of mismanagement, disease, parasitism or lack of feed. If a calf is deemed unthrifty, it is given the "Inferior" grade but could qualify for frame and muscle grades at a later date if the problem is corrected. Double-muscled cattle (ex. Peiedmontese, Belgian Blue, Parthenais) are also graded as inferior because, even though they exhibit superior muscling, they do not produce a carcass with enough marbling to grade Choice.

Learning how to apply USDA feeder cattle grades will enable commercial beef cattle producers to have a less biased, and more objective, perception of the value of their calf crop. If good records are kept, it will also allow them to make more informed culling decisions for the cow herd. A good place to practice feeder cattle grading is at the local livestock auction. For more information and educational resources, feel free to contact a representative of the Mississippi State University Extension Service.